

**NARRATIVE PROPOSAL WORK PLAN  
2021 TARGETED AIR SHED GRANT PROGRAM  
RFA # EPA-OAR-OAQPS-21-03**

**Project Title:** Diesel School Bus Replacements with Zero-Emission Alternatives  
Project in the Western Mojave Desert Basin

**Project Description:** Replace three (3) diesel school buses with zero-emission alternatives.

**Applicant Name:** California Air Resources Board (CARB) on behalf of the Mojave Desert Air Quality Management District (MDAQMD or Air District)

**Address:** California Air Resources Board  
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**Submitted on behalf of:** Mojave Desert Air Quality Management District  
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**Funding Requested:** \$1,150,101  
**Voluntary Cost Share:** \$255,578  
**Total Project Cost:** \$1,405,679  
**Project Period:** October 1, 2021 to January 1, 2025

**Applicant Eligibility:** MDAQMD is an air pollution control agency, as defined by Section 302(b) of the CAA, that: (a) has responsibilities for development and implementation of a state implementation plan to attain and maintain national ambient air quality standards for ozone and PM2.5 within Mojave Desert Air Basin and Riverside County's Palo Verde Valley. The proposed project is located in the Western Mojave Desert Ozone Nonattainment Area which is an ozone nonattainment area per the (2015 8-hour standard of 70 parts per billion). The MDAQMD does not have an active air program grant under Section 103 or 105 of the CAA; however, the California Air Resources Board will be applying on our behalf.

**DUNS number:** 1959302760000

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**1) Project Summary and Approach**

The Mojave Desert Air Quality Management District (MDAQMD) is submitting the “Diesel School Bus Replacement with Zero-Emission Alternatives Project in the Western Mojave Desert Air Basin” for the replacement of three (3) diesel school buses with battery powered alternatives (zero-emission) in response to the EPA “2021 Targeted Air Shed Grant Program” (EPA-OAR-OAQPS-21-03) Request for Applications (RFA) pertaining to the Mojave Desert Air Basin. The zero-emission alternatives are the cleanest available technology, and the replacement project will maximum the emission reductions.

The MDAQMD stretches out over almost 20,000 square miles of California’s vast desert expanse. As the air pollution control agency for San Bernardino County’s High Desert and Riverside County’s Palo Verde Valley, the MDAQMD has primary responsibility for controlling emissions from stationary sources of air pollution. The MDAQMD is committed to protecting the air for more than 700,000 residents living within its boundaries while supporting strong and sustainable economic growth. Currently, the Western Mojave Air Basin ranks as one of the top five polluted areas for ozone and is in severe non-attainment status based on the 2017-2019 Air Quality Measurements. One of the goals of the Targeted Airshed grant is to implement projects that can demonstrate documentable reductions in precursor emissions of ozone which include nitrogen oxides (NO<sub>x</sub>), and volatile organic compounds (VOCs) including many hydrocarbons (HC), and/or direct or precursor emissions of PM<sub>2.5</sub> (particulate matter). The MDAQMD has identified the ozone precursor nitrogen oxide (NO<sub>x</sub>) as the most significant air quality challenge in meeting the upcoming ozone standard deadlines in our jurisdiction: specifically coming from mobile sources through the combustion of fuels. This replacement project will have a direct impact on the Western Mojave Desert Air Basin by reducing NO<sub>x</sub> in an area that is classified as an 8-hour ozone severe nonattainment.

Mobile sources in municipal and business transportation make up the largest portion of NO<sub>x</sub> emissions in the Mojave Desert Air Basin and have been identified as the most significant sources with adverse impact on air quality and public health, particularly in Disadvantaged Communities (DA). The day-to-day operations and activities in these communities result in high levels of emissions of ozone precursors, toxic air contaminants including diesel particulate matter (PM) and greenhouse gases (GHGs). In order to mitigate these emissions, MDAQMD strongly supports many pathways to accelerated deployment of zero-emission technologies and school bus replacement project(s) due to their long equipment life is one way to accomplish these goals.

In the proposed project, MDAQMD will contract with the Adelanto Elementary School District (AESD) to replace three (3) model 2004-2006 diesel school buses with zero-emission alternatives. The existing diesel school buses are owned by the AESD. The AESD is a school district in San Bernardino County that serves students in the city of Adelanto. The diesel school buses operate throughout the academic year and are used to transport students to and from school related activities. The diesel buses operate the majority of the time in disadvantaged and low-income neighborhoods, and within an area classified as 8-hour ozone severe non-attainment. On average, each diesel school bus operates 14,000 miles/year. Without a grant award the baseline school buses will continue to operate for the next ten (10) years (possibly longer after an engine retrofit) in a severe ozone non-attainment area. The diesel school buses are mobile source emitters of NO<sub>x</sub> and PM with the highest level of exposure affecting children.

The AESD is the elementary school district in Adelanto, California, and has significant bus operations in disadvantaged/low-income communities as defined by Senate Bill 535 (De Leon, Chapter 830, Statutes of

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2012) and Assembly Bill 1550 (Gomez, Chapter 369, Statutes of 2016), (Figure 1, page 6). More than eighty percent of the students attending AESD schools qualify for free or reduced-price meals through the state meal mandate.

The AESD bus fleet consists of 54 diesel buses that transport roughly 3,600 students daily. The bus fleet travels a cumulative total of approximately 440,000 miles annually, consumes 68,460 gallons of diesel fuel a year and emits high levels of NO<sub>x</sub>, toxic diesel PM<sub>2.5</sub>, and GHGs. The grant will replace three diesel fueled buses in the AESD that have been in service between 15 and 17 years, (Table 1).

**Table 1: Current buses in the AESD fleet to be replaced**

Bus to be replaced	Year	Class	Annual usage	Engine
Thomas SAF-T-LINER	2004	Class 8	3,000 hours or 14,000 miles	Mercedes MBE906260
Thomas SAF-T-LINER	2006	Class 8	3,000 hours or 14,000 miles	Mercedes MBE9006260
Thomas SAF-T-LINER	2006	Class 8	3,000 hours or 14,000 miles	Mercedes MBE9006260

The AESD replacement buses proposed in this grant application will be zero-emission and all-electric, (Table 2). The purchase will be contracted with A-Z Bus Sales for a total cost of \$1,277,890.38. The MDAQMD will contribute \$255,578 to the purchase of the electric buses. The administration cost for the TAG grant will be \$127,789.

**Table 2: Electric Buses to be added to the AESD fleet**

Replacement Bus	Manufacturer	Number	Battery	Cost per bus, dollars
T3RE 3904	Blue Bird Corporation	3	150 KW	\$425,963.46

The AESD will be reimbursed the cost to purchase the zero-emission electric buses minus the MDAQMD contribution). The MDAQMD request for \$1,150,101 from the 2021 TAG Program will fund these zero-emission electric-school buses and includes administrative costs to implement and support the project, (Table 3).

**Table 3: MDAQMD cost and funding request for the 2021 Targeted Air Shed Grant**

School District	Project Cost*	MDAQMD Contribution	Funding Request
Adelanto Elementary School District	\$1,405,679	\$255,578	\$1,150,101

\*includes administration cost

The MDAQMD staff has experience in undertaking this type of project, both in technical expertise and project management. Experience with the Carl Moyer Memorial Air Quality Standards Attainment Program has provided MDAQMD the understanding and tools needed to successfully implement the Air Shed Grant Program. MDAQMD has also applied and is currently implementing an Air Shed Grant titled *Locomotive Replacement Project in the Western Mojave Desert Air Basin*.

Implementation of the proposed project is estimated to neither increase/decrease the number of school buses in Mojave's jurisdiction but will replace three (3) diesel school buses with zero-emission

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alternatives. The three (3) diesel school buses will be destroyed pursuant to the 2017 Carl Moyer Program Guidelines to ensure permanent, quantifiable, and enforceable emission reductions. In addition, MDAQMD will follow the documentation and verification standards as it pertains to the Carl Moyer Memorial Air Quality Standards Attainment Program. Additionally, the proposed project supports EPA's Strategic Plan to *deliver real results to provide Americans with clean air, land, and water*. This also meets the State of California 2016 Mobile Source Strategy of *Advancing Low-Emission and Zero Emission Technologies for On-Road Equipment*.

#### Explanation of Project Benefits to the Public

The Airshed Grant will allow the AESD to replace three (3) diesel school buses that operate primarily in disadvantaged and low-income communities within the Western Mojave Desert Air Basin. The proposed project is estimated to reduce annually 0.290 tons per year (tpy) of NO<sub>x</sub>, 0.024 tpy PM<sub>2.5</sub>, and 45.9 tpy of CO<sub>2</sub> emissions as compared to the three (3) diesel buses. The reductions will achieve immediate and on-going improvements in air quality and public health, particularly in communities where the residents are disproportionately impacted by the adverse effects of high levels of emissions. The project will also improve the quality of life for the community. Replacing the old school buses with the zero-emission alternatives will significantly reduce noise pollution in the communities, due to the fact the new buses are quieter compared to the old one.

The longer-term goal of this project is to promote market acceptance of zero-emission school bus alternatives, professional jobs related to the maintenance of the new buses. Anticipated project outputs and outcomes are summarized in, Table 4.

**Table 4: Anticipated Outputs and Outcomes**

Activities	Outputs	Long-term outcomes
<ul style="list-style-type: none"> <li>Replacement of three (3) diesel fueled school buses</li> </ul>	<ul style="list-style-type: none"> <li>Zero-emission electric school bus.</li> </ul>	<ul style="list-style-type: none"> <li>Decrease public health risk to school children and residents in disadvantaged communities</li> <li>Accelerate market acceptance and deployment of near-zero emission vehicles.</li> </ul>

#### Explanation of Emission Source Category

Emissions reductions addressed by this proposed project are summarized below, Table 5.

**Table 5: Emissions Source Category and Criteria Pollutants Addressed by the Proposed Program**

Proposed Program	Potential Audience Served	Source	Pollutants
Replacement of three (3) diesel school buses.	Disadvantaged and low-income communities within the service area.	Diesel school buses.	ROGs, NO <sub>x</sub> , diesel PM, and CO <sub>2</sub>

#### Maximization of Total Project Benefits and Cost-Effectiveness

The MDAQMD has calculated that the project will reduce NO<sub>x</sub> by 0.290 tpy, PM<sub>2.5</sub> by 0.024 tpy, and CO<sub>2</sub> by 45.9 tpy. Over the ten-year (10) lifetime of the project, total emission reductions will be 2.901 tons of NO<sub>x</sub>, 0.238 tons of PM, and 459 tons of CO<sub>2</sub>. MDAQMD used the latest version of the mobile source emission model designated by EPA for use in modeling mobile source emissions for state implementation plan purposes, and the U.S. EPA tool, Diesel Emissions Quantifier (DEQ), to evaluate the emission reductions

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from the replacement of the diesel buses with all-electric buses. The calculations suggest that school bus replacement project is cost-effective on a dollars-per-ton-emitted basis and on this basis, MDAQMD has also concluded that this project is cost effective. Table 6. provides annual and lifetime reductions of NO<sub>x</sub>, PM<sub>2.5</sub>, HC, CO<sub>2</sub>, and fuel for this project.

**Table 6: Reduction in Emissions and Diesel Fuel Use**

<u><i>Annual Results (tons per year)</i></u>	<b>NO<sub>x</sub></b>	<b>PM<sub>2.5</sub></b>	<b>HC</b>	<b>CO<sub>2</sub></b>	<b>Fuel<sup>2</sup></b>
Baseline for Upgraded Vehicles/Engines	0.290	0.024	0.039	45.9	4080
Amount Reduced After Upgrades	0.290	0.024	0.039	45.9	4080
Percent Reduced After Upgrades	100%	100%	100%	100%	100%
<u><i>Lifetime Results (tons)</i></u>					
Baseline for Upgraded Vehicles/Engines	2.901	0.238	0.390	459.0	40,800
Amount Reduced After Upgrades	2.901	0.238	0.390	459.0	40,800
Percent Reduced After Upgrades	100%	100%	100%	100%	100%
<u><i>Lifetime Cost Effectiveness (\$/ton reduced)</i></u>					
Capital Cost Effectiveness <sup>3</sup>	\$667,056	\$7,869,600	\$4,843,445	\$3,062	
(unit & labor costs only)					
Total Cost Effectiveness <sup>3</sup>	\$667,057	\$7,869,611	\$4,843,452	\$3,062	
(includes all project costs)					

<sup>1</sup> Emissions from the electrical grid are not included

<sup>2</sup> In gallons; fuels other than ULSD have been converted to ULSD-equivalent gallons.

<sup>3</sup> Cost effectiveness estimates based on user included costs

## **2) Community Benefits, Engagements and Partnerships**

Mobile sources in municipal and business transportation make up the largest portion of NO<sub>x</sub> emissions and have been identified as the most significant sources with adverse impact on air quality and public health, particularly in disadvantaged and low-income communities. The day-to-day operations and activities in these communities results in high levels of emissions of ozone precursors, toxic air contaminants and GHGs. In order to mitigate these emissions, MDAQMD strongly supports many pathways to accelerated deployment of zero-emission technologies and electric school buses are one of ways to accomplish this. For example, by replacing the three (3) diesel school buses over the ten (10) year project life the Air District expects to see a reduction of 2.901 tons of NO<sub>x</sub> emissions and 0.238 tons of PM<sub>2.5</sub> emissions. The reduction in PM<sub>2.5</sub> is commended as CARB has identified diesel PM, a component of PM<sub>2.5</sub>, as a toxic air containment and is labeled as a carcinogen. The reduced NO<sub>x</sub> emissions will have a positive impact on air quality and public health in the community.

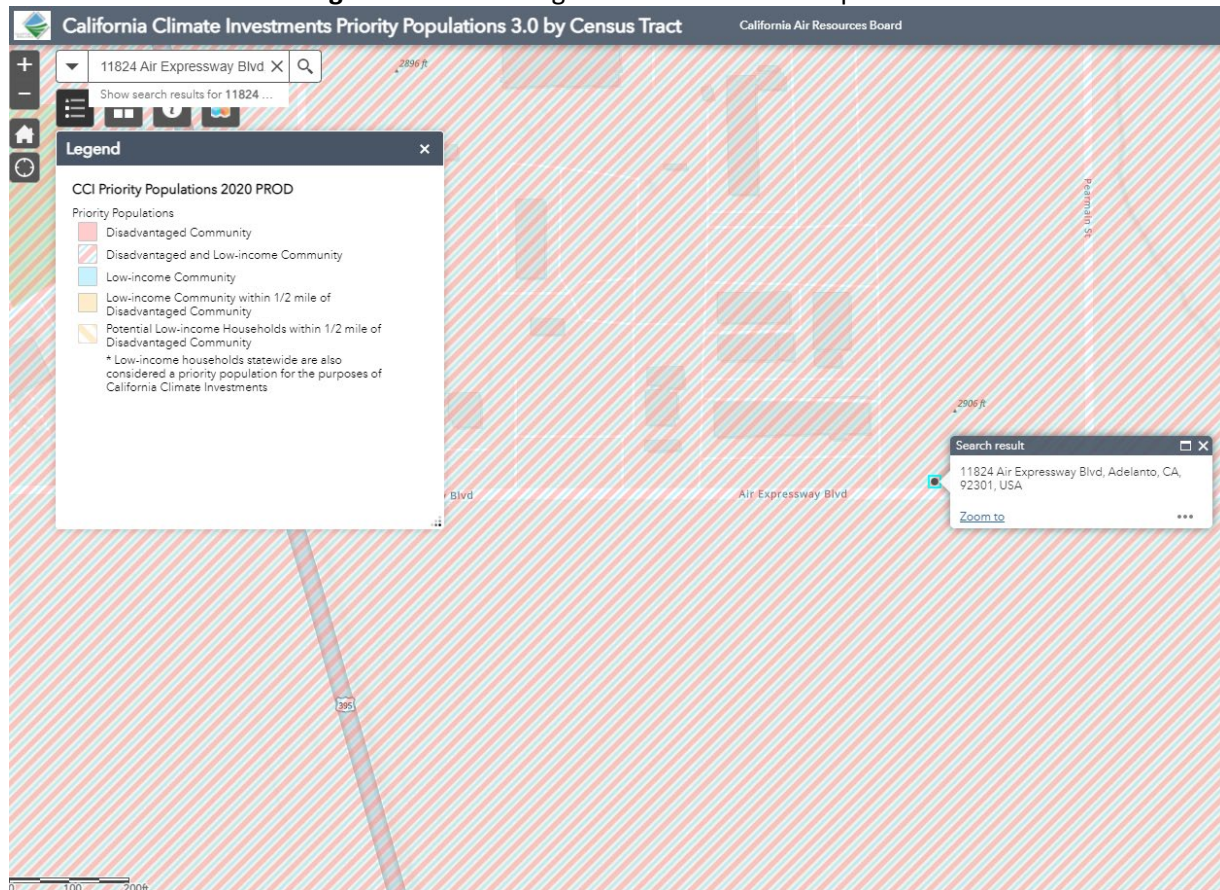
The proposed *Diesel School Bus Replacements Project with Zero-Emission Alternatives Project in the Western Mojave Desert Basin* will primarily affect the City of Adelanto located in San Bernardino County, California. Per US Census data the City of Adelanto, per US Census data has a population of 31,765 with a median household income of \$41,113.00. The majority of the city of Adelanto is considered to be a disadvantaged

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or low-income community as defined by Senate Bill 535 (De Leon, Chapter 830, Statutes of 2012) and Assembly Bill 1550 (Gomez, Chapter 369, Statutes of 2016).

The replacement project will have an immediate impact in the community of Adelanto. Especially, in households located near school bus routes. In addition, large portions of Adelanto have been identified as disadvantaged and low-income communities (Figure 1). Disadvantaged and low-income communities and households are census tracts and households, respectively, that are either at or below 80 percent of the statewide median income, or at or below the threshold designated as low-income by the California Department of Housing and Community Development's (HCD)

**Figure 1 :Disadvantaged and low-Income Map-AESD**



The proposed project is estimated to reduce annually 0.290 tpy of NO<sub>x</sub>, 0.024 tpy of PM<sub>2.5</sub>, and 45.9 tpy of CO<sub>2</sub> emissions for the replacement of the three (3) diesel school buses with three (3) zero-emission alternatives: a reduction of 100%. Over the ten-year project life, we expect to see a reduction of 2.901 tons of NO<sub>x</sub>, and 0.238 tons of PM<sub>2.5</sub> emissions. The reduction in PM<sub>2.5</sub> is significant as CARB has identified diesel PM, a component of PM<sub>2.5</sub>, as a toxic air containment and is labeled as being carcinogen. The project will achieve immediate and on-going reductions in emissions and thus will improve the air quality and public health in a vulnerable community.

Lastly, the project will also address a need expressed by the community and stakeholders. The Air District has held public meetings and the community expressed an interest in increasing use of zero-emission technology. The MDAQMD as part of the administrative fees will continue to hold public meetings inviting

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stakeholders, community-based organizations, and concern citizens to participate in our goal of promoting clean air and contributing to a reduction in emissions. In order to increase participation in these meeting the MDAQMD will be utilizing the following engagement strategies: (1) newspaper ads with information on when meetings will be held and (2) social media updates and blasts on how to promote clean air. It is the MDAQMD's aim to use these meetings as a platform for future partnership and to work as an entity for building and supporting partnerships for everyone involved. Lastly, through our communication and educational outreach team the MDAQMD will also work with local school districts to discuss the benefits of zero-emission technology. The point of these conversations will be to increase awareness of new zero emission school technology and how grants can help increase air quality in schools and the communities.

**3) Project Sustainability**

The long-term goal of this project is to: (1) promote market acceptance of emission school buses and (2) create professional jobs related to the maintenance of the new buses. Successful implementation of the zero-emission buses will help encourage other school districts transportation departments to adopt this technology. For example, the Barstow Unified School District (BUSD) also resides within the non-attainment area. The BUSD provides jobs for the surrounding community. If the new zero-emission buses prove successful at AESD then those results can be duplicated at BUSD. If BUSD adopts the technology the surrounding area will see an immediate reduction in emission from school buses. In addition, the new zero-emission buses in turn will create a demand for trained professional jobs as it relates to the maintenance of the new technology. The project will also contribute to achieving ozone standards for the Western Mojave Air Basin. Currently, the Western Mojave Air Basin is classified as an 8-hour ozone severe nonattainment. 2017 emission inventory data indicates that school buses in Mojave's jurisdiction contribute 67.37 tons in NO<sub>x</sub>, 1.02 tons in ROG, 7.04 tons of PM, 6.93 PM<sub>10</sub> tons, and 3.14 PM<sub>2.5</sub> ton yearly. By destroying the old diesel school buses and replacing them with zero-emission alternatives the air basin can achieve 100% reduction in school buses emissions as a whole.

Lastly, the MDAQMD in conjunction with the Mojave Environmental Educational Consortium (MEEC) whom is an organization that improves the environmental literacy of students, teachers, and the communities of the Mojave Desert Region by actively providing educational resources will work with the school districts to promote the new technology and offer resources to explore and learn more about the technology from an educational standpoint. To ensure we are meeting these goals this information will be included in the quarterly reports submitted to CARB on the project status.

**4) Environmental Results-Outcomes, Outputs and Performance Measures:**

The proposed project will replace three (3) diesel school buses with three (3) zero-emission alternatives (battery powered). The new emission standards for the buses are zero-emission CARB Certified. As the new buses are the cleanest available technology the reductions in NO<sub>x</sub>, PM<sub>x</sub> and CO<sub>2</sub> will be maximized. In addition, since NO<sub>x</sub> is an ozone precursor, reductions in their emissions will reduce ambient ozone concentrations and will help the Western Mojave Desert Air Basin move towards ozone attainment. The replaced school buses will be destroyed in accordance with Carl Moyer Guidelines by a licensed dismantler to ensure permanent, quantifiable, and enforceable reductions. A certificate of destruction



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will be provided to the MDAQMD by the dismantler and will remain in the project file. Total emission reductions of for this project of NO<sub>x</sub>, PM<sub>2.5</sub>, HC, and CO<sub>2</sub> are shown in Table 7.

**Table 7. Expected Outcomes and Outputs**

Program Title	Annual Emission Reductions (TPY)				Lifetime Reductions (Tons)			
	NO <sub>x</sub>	PM <sub>2.5</sub>	HC	CO <sub>2</sub>	NO <sub>x</sub>	PM <sub>2.5</sub>	HC	CO <sub>2</sub>
<b>Diesel School Bus Replacement Project</b>	0.290	0.024	0.039	45.9	2.901	0.238	0.29	459

In order to ensure the emission reductions and fuel savings the operator will provide quarterly reports to the MDAQMD for the duration of the grant which concludes on January 1, 2025. The reports will document charging rates and usage. In addition, the reports will also document any downtime of the buses as well as any maintenance issues encountered. The reports will be required in order to ensure the new buses are operated and the emission reductions are realized. The MDAQMD will work with AESD to ensure all emission reductions are realized which may include extending the project life if necessary. Within 90 days of the end of the grant agreement CARB will submit a final report. The final report will include the information required for quarterly reports but summarized for the duration of the project. In addition, the final report will include the narrative summary of the project, project outcomes, emission benefits calculations, and impact on air quality, including ozone and PM<sub>2.5</sub> trends and design values. As an additional reporting mechanism and to ensure the emission reductions are realized for the project life. The MDAQMD will require AESD to submit annual reports to MDAQMD. The annual reports will include all information required to be submitted as part of the quarterly report.

The longer-term goal of this project is to promote market acceptance of zero-emission school buses, professional jobs related to the maintenance of the buses. On a quarterly basis, MDAQMD will report to CARB the project status, including milestones such as the delivery of the buses and any challenges and delays encountered, updated timeline, if necessary, funds expended, and other pertinent information. Once the reports are submitted to CARB, CARB will then submit the reports to EPA on the MDAQMD's behalf. A final report will be submitted by CARB to EPA within 90 days of the end of the grant agreement.

**5) Programmatic Capability and Past Performance:**

**Roles and Responsibilities of MDAQMD and Project Partners:**

The MDAQMD staff will implement the proposed incentive program, monitor progress, and submit quarterly reports to EPA on progress and findings of this project. Quarterly reports will contain accomplishments, description of any slippages and challenges, and other pertinent information. The MDAQMD will also submit to EPA a final performance report, within 30 days following the expiration of the grant project period. The report shall be submitted to the EPA Project Officer and may be submitted electronically. The report shall generally contain the same information as in the quarterly reports but will cover the entire project period. Upon approval by the MDAQMD Governing Board, the MDAQMD will deliver contract/agreement to AESD to replace a total of three (3) diesel powered school buses with zero-emission buses. The old diesel buses will be destroyed by a licensed dismantler to ensure permanent and enforceable emissions reductions.

**Description of Applicant's Organization and Experience:**



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Description of MDAQMD

The MDAQMD stretches out over almost 20,000 square miles of California's vast desert and is the air pollution control agency for San Bernardino County's High/Low Desert regions and Riverside County's Palo Verde Valley. For the last 28 years the MDAQMD has been the air pollution control agency responsible for monitoring and regulating air pollution within the jurisdiction of the Mojave Desert Air Basin. The MDAQMD is committed to protecting the air for nearing 700,000 residents living within its boundaries while supporting strong and sustainable economic growth. The 2021 Targeted Air Shed Grant has identified/classified the Western Mojave basin as severe-ozone nonattainment area per the (2015 8-hour standard of 70 parts per billion).

CARB/ MDAQMD Experience

With respect to grant management, CARB has accepted several U.S. EPA grants in the past four years, including: Section 105 Air Pollution Control Financial Assistance Grant (Grant Number A-00901315), PM 2.5 Monitoring Network Grant (Grant Number PM-00T41301), and the State Clean Diesel Grant (Grant Number DS-99T62501). Each of these recent grants represents a continuation of a multi-year, multi-million dollar grants from U.S. EPA. For each grant, CARB has completed all grant agreement terms and completed (or expects to complete) the approved work plans to expeditiously apply funds to shared U.S. EPA and CARB air quality goals. CARB has documented progress on these grants through submittal of required reports and inputting collected data into state and national databases, as appropriate per the grant terms.

Additionally, CARB has extensive experience implementing multi-million-dollar incentives programs, such as the Lower-Emission School Bus Program, the Carl Moyer Memorial Air Quality Standards Attainment (Moyer) Program, Goods Movement Emission Reduction (Goods Movement) Program, the Air Quality Improvement Program (AQIP), and the Providing Loan Assistance for California Equipment (PLACE) Program. CARB's experience in these programs has established solid working relationships with Air Districts as well as engine/equipment and retrofit manufacturers and vendors necessary for successfully implementing the proposed project.

During FY 2017-18, the MDAQMD supported and administered a variety of projects and technologies stemming from our Carl Moyer Memorial Grant Funding, Voluntary NOx Remediation and Community Air Protection Program funding. In Fiscal Year 2018-19 the MDAQMD awarded 3.6 million in cost-effective replacement projects across the air basin. Projects that have been or will be completed will replace older polluting, heavy-duty off-road equipment with newer, cleaner technology that meet the current emissions standards. In addition, MDAQMD has a long history of successfully collaborating with stakeholders to reduce emissions from stationary and mobile sources.

The project described in this application consists of purchasing three (3) zero emission school buses, replacing and destroying three (3) older diesel-powered buses. Previously, the MDAQMD has successfully awarded over \$1 million grants funds from CARB's Community Air Protection Program (CAPP) Grant toward the purchase of six (6) zero-emission school buses, replacing and destroying six (6) diesel powered buses, Table 8. CAPP is a community-focused action framework to improve air quality and reduce exposure to criteria air pollutants and toxic air contaminants (TACs) in the communities most impacted by air pollution. The grant funds provide financial incentives to both public and private sectors to reduce emissions by retiring and replacing older equipment with newer cleaner engine technologies; and prioritizing zero-emission technology and infrastructure if possible.

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**Table 8: Community Air Protection Grant from CARB**

<b>Project Types</b>	<b>Community Air Protection Program Grant</b>	<b>Operator Cost Share</b>
Diesel School Bus Replacement to Zero-Emission Alternatives	\$1,639,703	\$197,893

In addition, the MDAQMD is currently administering and reporting on another EPA grant titled *Locomotive Replacement Project in the Western Mojave Desert Basin* in response the EPA's "2019 Targeted Air Shed Grant Program" (EPA-OAR-OAQPS-20-01) Request for Applications (RFA). For this reason, the District is familiar with the rigorous reporting requirements of the TAG program.

Lastly, MDAQMD has successfully been implementing air quality incentive programs, such as the Carl Moyer Memorial Air Quality Standards Attainment Program for over a decade. MDAQMD is capable of successfully planning, implementing, and administering an EPA sponsored diesel emissions reduction program.

Staff Expertise, Qualification, Knowledge, and Resources

For 28 years, MDAQMD has thoroughly demonstrated its capabilities and expertise to successfully plan, implement, and administer similar types of projects. The highly technical MDAQMD staff has the resources necessary to meet the goals of the proposed project. As stated previously, MDAQMD will administer project funds and provide comprehensive project management including managing grants, preparing and managing contracts for the projects, and monitoring the progress of the projects through the various stages. The proposed projects will be implemented by MDAQMD staff, with coordinating oversight from staff at the California Air Resources Board (CARB). Primary staff assigned includes:

Ms. Ariel Fideldy is Manager of the South Coast Air Quality Planning Section at the California Air Resources Board. Ms. Fideldy is responsible for overseeing all Clean Air Act state implementation planning for ozone and particulate matter pollution for the nonattainment areas in southern California, and development of statewide strategies for reducing emissions to meet federal air quality standards. Ms. Fideldy has over 10 years of experience in the air pollution field with over 6 years working on state implementation planning required to meet federal air quality standards. Ms. Fideldy worked with local agencies in the development of SIPs required for the 75 ppb ozone standard and helped to initiate the development of SIP submittals for 19 California nonattainment areas as required under the more recent 70 ppb ozone standard. Ms. Fideldy also leads development of the 2020 Mobile Source Strategy, a unique document that integrates the planning efforts of California's multiple air quality and climate goals and helps to guide CARB's rulemaking for a number of years.

Dr. Scott King is an Air Pollution Specialist with the California Air Resources Board with over 13 years of experience evaluating air quality, meteorological, and emissions data to better understand the nature and causes of NOx emissions and ozone pollution. Scott has been the lead staff in developing multiple State Implementation Plans for the South Coast Air Basin and other southern California ozone nonattainment areas all of which are heavily impacted by NOx emissions from mobile sources.

Mrs. Jean Bracy is the Deputy Director of Administration for the MDAQMD. Mrs. Bracy has managed the MDAQMD Grants program for more than 20 years, and managed grants from other federal agencies including EPA, FTA and FHWA. At the MDAQMD with support of one employee, she administers grant programs with funds from federal sources, and incentive grant programs with funds from state and local

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sources. During her tenure at the MDAQMD she developed the Mobile Source Emissions Reduction Program conducting a competitive grant program to distribute more than \$15 million dollars collected from local vehicle registration fees. She led the effort to redesign the program in 2017 to enhance the distribution of funds to achieve MDAQMD goals to improve reductions from mobile emissions. She organized the work to redesign the MDAQMD Carl Moyer Memorial Air Quality Standards Attainment Program for updated state guidelines and distributed more than \$11 million dollars over 10 years for off road projects designed to improve reductions from mobile emissions. With the support of one full time employee (Jorge Camacho) she administers these incentive grant programs in addition to MDAQMD Clean Air Fund, with local agency funds.

Mr. Jorge Camacho is the Grants Analyst for the MDAQMD. For more than three years at the MDAQMD and under direction of the Finance Manager, he plans, analyzes, organizes, and coordinates all aspects of the grant programs that support the mobile source emissions reduction and related grant programs and special projects. The work required includes hands-on-work with grantees, calculating cost-effectiveness, evaluating project outcomes, ranking projects for priority with regards to funding tracking and follow up for on time reporting and milestone achievements across a wide variety of emission reducing projects (from locomotives to cranes). His responsibilities include timely and accurate reporting and contract compliance to the original funding sources as required by the respective funding agreements. He is the primary source for regulatory and program guidelines to measure program compliance. In addition, he has over 5 years of experience managing and implementing projects while working for the County of San Bernardino.

#### Estimated Project Timeline:

Description of Specific Actions: The tasks for the proposed programs are as follows:

<b>Task 1</b>	<b>Grant Agreement</b>
Task 1.1	Execute a grant agreement with CARB/EPA
Task 1.2	Solicit final application requirements from AESD
<b>Task 2</b>	<b>Contracts Execution</b>
Task 2.1	MDAQMD to receive approval by its Governing Board.
Task 2.2	MDAQMD to develop and execute contracts with AESD
<b>Task 3</b>	<b>Manufacture of zero-emission buses</b>
Task 3.1	Finalize Purchase requirements and zero-emission buses specifications
Task 3.2	Issue purchase and place/order new zero-emissions school buses
Task 3.3	Vendors manufacturers' new school buses
<b>Task 4</b>	<b>Delivery</b>
Task 4.1	AESD take delivery and accepts school buses
Task 4.2	Perform necessary training
Task 4.3	AESD destroys old baseline equipment
<b>Task 5</b>	<b>Reporting Requirements</b>
Task 5.1	Report project status on a quarterly basis to CARB/EPA
Task 5.2	Determine air quality benefits achieved through the proposed project
Task 5.3	Submit final report to CARB/EPA

Estimated Timeline Overview for Each Task: A detailed project plan is divided into four major tasks as outlined below in Table 9.

**NARRATIVE PROPOSAL WORK PLAN**  
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**Table 9: Estimated Timeline for Project Milestones** *\*manufacturing after purchase 9-12 months.*

Milestone	2021		2022				2023				2024			
	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Task 1: Grant Agreement</b>														
1.1 Execution of Agreement with CARB/EPA														
1.2 Solicit final application requirements from VVUSH/AESD														
<b>Task 2: Contracts Execution</b>														
2.1 Board Approval														
2.2 Contract Execution														
<b>Task 3: Manufacture of zero-emission school buses</b>														
3.1 Finalize purchase agreement with vendors														
3.2 Execute purchase and place order														
3.3 Vendors manufactures zero-emission buses														
<b>Task 4: Delivery</b>														
4.1 VVUSH/AESD takes Delivery														

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4.2 Perform necessary training														
4.3 VVUHS/AESD destroys old baseline equipment														
<b>Task 5: Monitoring and Reporting</b>														
5.1 Quarterly Reports														
5.2 Air Quality Benefit Analysis														
5.3 Final Report														

**6) Budget**

Budget and Estimated Funding by Task

The expected cost of the budget is not to exceed \$1,405,679 to replace the three (3) diesel school buses with new zero-emission alternatives. The amount requested from the TAG Grant is \$1,150,101. The amount also includes administrative cost.

Procedures for Efficient Expenditures

The MDAQMD staff has extensive experience managing both incentive and demonstration projects. Our highly technical staff has the resources and expertise necessary to successfully implement the proposed project, including drafting a contract with appropriate terms and conditions, detailed task descriptions, and payment schedules tied to milestones to ensure all required tasks have been satisfied before any funds are paid out. In addition, MDAQMD will closely monitor the progress of the project via telephone calls, e-mails, meetings, and site visits as well as quarterly progress reports provided by the grantees. Invoices are generally processed and paid out within 30 days of the receipt by the MDAQMD to ensure projects are not negatively affected by delayed reimbursements.

Tables 10 and 11 list the itemized cost of the grant.

**Table 10: Itemization of Costs**

Line Item and Itemized Cost	EPA Funding	Cost-Share
Personnel - Air Pollution Specialist @ \$50.78/per hour *465 hours	23,612	
Fringe Benefits @ 37.28 %	8,802	
Other- Cost Pass-through to the MDAQMD	1,104,809	

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Other- (Operator and Private Contribution cost share)		\$255,578
<b>Total Direct Charges</b>	<b>1,137,223</b>	<b>\$255,578</b>
<b>Indirect Cost (ICRP 39.73%)</b> (Personnel + Fringe)*39.73%	<b>12,878</b>	
<b>Total Federal Funding</b>	<b>1,150,101</b>	
<b>Total Project Cost (federal and non-federal)</b>	<b>1,405,679</b>	

**Table 11: Detailed Itemization of Costs**

Line Item and Itemized Cost		
	%	EPA Funding
<b>Personnel</b>		
(1) Grants Analyst @ \$38.46 /hr @500 hours Percentage of time per task: Task 1 Grant Agreement: 30% of total hours Task 2 Contract Execution: 10 % of total hours Task 3 Manufacture of Buses: 10 % of total hours Task 4 Delivery: 10% of total hours Task 5 Reporting Requirements: 40% of total hours	30.00% 10.00% 10.00% 10.00% 40.00%	\$19,230.00
(2) Deputy Director-Administration @ \$86.86/hr @ 100 hours Percentage of time per task: Task 1 Grant Agreement: 30% of total hours Task 2 Contract Execution: 10 % of total hours Task 3 Manufacture of Buses: 10 % of total hours Task 4 Delivery: 10% of total hours Task 5 Reporting Requirements: 40% of total hours	30.00% 10.00% 10.00% 10.00% 40.00%	\$8,686.00
(3) Executive Director/APCO @ \$105.68/hr @ 50 hours Percentage of time per task: Task 1 Grant Agreement: 40% of total hours Task 2 Contract Execution: 40% of total hours Task 3 Manufacture of Buses: 0% of total hours Task 4 Delivery: 0% of total hours Task 5 Reporting Requirements: 20% of total hours	40.00% 40.00% 0.00% 0.00% 20.00%	\$5,284.00
(4) Community Relations Supervisor @ \$48.02/hr @100 hours		\$4,802.00

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Percentage of time per task:	0.00%	
Task 1 Grant Agreement: 0% of total hours	0.00%	
Task 2 Contract Execution: 0% of total hours	0.00%	
Task 3 Manufacture of Buses: 0% of total hours	0.00%	
Task 4 Delivery: 50% of total hours	50.00%	
Task 5 Reporting Requirements: 50% of total hours	50.00%	
(5) Air Quality Specialist @ \$38.46/hr @100 hours		
Percentage of time per task:		
Task 1 Grant Agreement: % of total hours	0.00%	
Task 2 Contract Execution: 0% of total hours	0.00%	\$3,846.00
Task 3 Manufacture of Buses: 0% of total hours	0.00%	
Task 4 Delivery: 80% of total hours	80.00%	
Task 5 Reporting Requirements: 20% of total hours	20.00%	
<b>TOTAL PERSONNEL</b>		<b>\$41,848.00</b>
<b>FRINGE BENEFITS (40% of Salaries)</b>		<b>40% (\$41,848.00)</b>
Retirement, Health Benefits, FICA, SUI		\$16,739.20
<b>TOTAL FRINGE BENEFITS</b>		<b>\$16,739.20</b>
<b>Indirect Cost (40.81% of Personnel and Fringe)</b>		<b>40.81% (\$58,587.20)</b>
<b>TOTAL INDIRECT COST</b>		<b>\$23,909.44</b>
Other (Equipment Purchase) school buses purchase and sales tax		\$1,277,890.00
Others (Operator and Private Contribution cost share)		\$255,578.00
<b>TOTAL EQUIPMENT</b>		<b>\$1,022,312</b>
<b>TOTAL PASS-THROUGH TO THE DISTRICT</b>		<b>\$1,104,809</b>
<b>TOTAL TAG Request</b>		<b>\$1,150,101</b>

**7) Leveraging (Voluntary Cost Share)**

The MDAQMD will be contributing \$255,578 for this project. The cost share is broken down below. As per the TAG requirements a letter was provided by the project partner (MDAQMD) indicating the voluntary funding (Table 12). In addition, the AESD has partnered with local energy company Edison and has the EV infrastructure necessary to support the school buses. No additional funding would be necessary for infrastructure upgrades/needs.

**Table 12: Air District's Voluntary Funding**

<b>MDAQMD Cost-Share</b>	<b>Total Operator Cost-Share</b>
\$255,578	\$255,578

**References:**

Carl Moyer Memorial Air Quality Standards Attainment Program  
<https://www.arb.ca.gov/msprog/moyer/moyer.htm>